

Patent
Attorney's Docket No. 019519-302

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
)
Koichi KAWAMURA et al.) Group Art Unit: Unassigned
)
Application No.: Unassigned) Examiner: Unassigned
)
Filed: May 23, 2001)
)
For: PHOTORESISTIVE RESIN)
COMPOSITION)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, kindly amend the above-captioned application as follows:

IN THE CLAIMS:

Cancel claims 5 and 6 without prejudice or disclaimer.

IN THE SPECIFICATION:

Kindly replace the paragraph beginning on page 4, line 20, with the following:

-- Safelight tolerance is a criterion showing the stability of the sensitivity of an image when a printing plate is exposed to a safelight such as a fluorescent lamp and the higher the contrast of the image, the higher is the safelight tolerance. This is concerning with concerns the fact that quinonediazide is partially decomposed by a safelight. This is because if the quinonediazide is a little decomposed by a weak safelight when an image is

high contrast, the image is not eluted and becomes the same with the image not exposed to a safelight.--

Kindly replace the paragraph beginning on page 7, line 2, with the following:

-- For example, a technique of increasing sensitivity by adding a cyclic acid anhydride is disclosed in JP-A-52-80022 (the term "JP-A" as used herein means an "unexamined published Japanese patent application"). However, although the effect of increasing sensitivity is certainly observed according to this method, if an acid anhydride is added in the amount to be able to obtain a sufficient sensitivity increase, the image becomes soft and safelight tolerance and development latitude extremely deteriorate. Further, for increasing sensitivity, the addition of a condensation product of hydroxybenzophenone and formaldehyde is disclosed in JP-A-55-73045. In this case also as the same with the above JP-A-52-80022, the effect of increasing sensitivity is observed but if the addition amount is such that a sufficient sensitivity increase can be obtained, the image becomes soft and safelight tolerance and development latitude deteriorate.

Kindly replace the paragraph beginning on page 13, line 1, with the following:

-- That is, the present inventors have found that when the following copolymer is added to a photosensitive resin composition as the first fluorine-containing polymer, a positive type photosensitive resin composition showing image-forming property of high contrast, antihalation, safelight tolerance and wide development latitude can be obtained without decreasing the sensitivity. This method of the present invention is particularly

effective for making a positive type photosensitive resin composition highly sensitized by conventionally known methods. A soft image can be made high contrast, and halation, safelight tolerance and development latitude can be improved by the addition of the fluorine-containing polymer according to the present invention.--

Kindly replace the paragraph beginning on page 14, line 14, with the following:

-- As a result of eager investigation by the present inventors, it has been further found that the above object can be achieved by adding the second fluorine-containing polymer to a positive type photosensitive composition. That is, a positive type photosensitive composition showing image-forming property of high contrast, antihalation, safelight tolerance and wide development latitude can be obtained without decreasing the sensitivity by adding, as a fluorine-containing polymer, a copolymer having (1) a constituting component having a fluorine atom, (2) a constituting component having an acidic hydrogen atom, and (3) a constituting component showing lipophilic property to a photosensitive composition. This method of the present invention is particularly effective for making a positive type photosensitive composition highly sensitized by conventionally known methods. A soft image can be made high contrast, and halation, safelight tolerance and development latitude can be improved by the addition of the fluorine-containing polymer according to the present invention.--

Kindly replace the paragraph beginning on page 100, line 3, with the following:

-- Alkali agents so far been known can be used as a base in combination with reducing sugars. Examples of such alkali agents include an inorganic alkali agent such as sodium hydroxide, potassium hydroxide, lithium hydroxide, trisodium phosphate, tripotassium phosphate, triammonium phosphate, disodium phosphate, dipotassium phosphate, diammonium phosphate, sodium carbonate, potassium carbonate, ammonium carbonate, sodium hydrogencarbonate, potassium hydrogencarbonate, ammonium hydrogencarbonate, sodium borate, potassium borate, and ammonium borate. In addition to the above, organic alkali agents such as monomethylamine, dimethylamine, trimethylamine, monoethylamine, diethylamine, triethylamine, monoisopropylamine, diisopropylamine, triisopropylamine, nbutylamine, monoethanolamine, diethanolamine, triethanolamine, monoisopropanolamine, diisopropanolamine, ethyleneimine, ethylenediamine, and pyridine are also used.--

Kindly replace the paragraph beginning on page 108, line 23, with the following:

-- Further, if necessary, a developing solution can contain antiseptics, coloring agents, thickeners, defoaming agents, and water softeners. Examples of water softeners include polyphosphoric acid and sodium salt, potassium salt and ammonium salt thereof, aminopolycarboxylic acid and sodium salt, potassium salt and ammonium salt thereof, e.g., ethylenediaminetetraacetic acid, diethylenetriaminepentaacetic acid, triethylenetetraminehexaacetic acid, hydroxyethylmethylenediaminetriacetic acid, nitrolotriacetic acid, 1,2diaminocyclohexanetetraacetic acid, and

1,3-diamino-2-propanoltetraacetic acid, aminotri(methylenephosphonic acid), ethylenediaminetetra(methylenephosphonic acid), diethylenetriaminepenta(methylenephosphonic acid), triethylenetetraminehexa(methylenephosphonic acid), hydroxyethylmethylenediaminetri(methylenephosphonic acid), and 1-hydroxyethane-1,1-diphosphonic acid and sodium salt, potassium salt and ammonium salt thereof.--

Kindly replace the paragraph beginning on page 152, line 6, with the following:

-- Other additives which can be incorporated in the photosensitive composition, support, other coatings such as an organic undercoating layer, methods of coating the photosensitive composition, exposure and development can be effected as described with respect to the positive photosensitive composition containing the first fluorine-containing polymer. The photosensitive composition containing the third fluorine-containing polymer can contain the yellow dyes represented by formulae (I) to (III) described with respect to the photosensitive composition containing the second fluorine-containing polymer, and do not have to contain a photo-acid generator necessarily.--

Kindly replace the paragraph beginning on page 156, line 12, with the following:

-- For example, (meth)acrylates such as methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate, butyl (meth)acrylate, amyl (meth)acrylate, 2ethylhexyl (meth)acrylate, octyl (meth)acrylate, 2chloroethyl (meth)acrylate, cyclohexyl (meth)acrylate, 2hydroxyethyl (meth)acrylate, 2hydroxypropyl (meth)acrylate,

2hydroxybutyl (meth)acrylate, diethylene glycol mono(meth)acrylate,
2hydroxy-3-phenoxypropyl (meth)acrylate, glycidyl (meth)acrylate, diethylaminoethyl
(meth)acrylate, furfuryl (meth)acrylate, tetrahydrofuryl (meth)acrylate, phenyl
(meth)acrylate, hydroxyphenyl (meth)acrylate, cresyl (meth)acrylate, naphthyl
(meth)acrylate, benzyl (meth)acrylate, and methoxybenzyl (meth)acrylate;
(meth)acrylamides such as (meth)acrylamide, Nethyl(meth)acrylamide,
Npropyl(meth)acrylamide, Nbutyl(meth)acrylamide, Nhanyl(meth)acrylamide,
Noctyl(meth)acrylamide, Ncyclohexyl(meth)acrylamide, Nmethylol(meth)acrylamide,
Nhydroxyethyl(meth)acrylamide, Nbenzyl(meth)acrylamide, Nphenyl(meth)acrylamide,
Nnitrophenyl(meth)acrylamide, Ntoly(meth)acrylamide,
Nhydroxyphenyl(meth)acrylamide, N,Ndimethyl(meth)acrylamide,
N,Ndiethyl(meth)acrylamide, and N,Ndicyclohexyl(meth)acrylamide; Nsubstituted
maleimides such as Nmethylmaleimide, Nethylmaleimide, Npropylmaleimide,
Nbutylmaleimide, Npentylmaleimide, Nn-hexylmaleimide, Nlaurylmaleimide,
Nstearylmaleimide, Ncyclohexylmaleimide, Nphenylmaleimide, Nchlorophenylmaleimide,
Ntolylmaleimide, Nhydroxymaleimide, and Nbenzylmaleimide; allyl compounds such as
allyl acetate, allyl caproate, allyl stearate, and allyloxyethanol; vinyl ethers such as ethyl
vinyl ether, propyl vinyl ether, butyl vinyl ether, octyl vinyl ether, methoxyethyl vinyl
ether, ethoxyethyl vinyl ether, 2chloroethyl vinyl ether, hydroxyethyl vinyl ether, benzyl
vinyl ether, tetrahydrofurfuryl vinyl ether, phenyl vinyl ether, tolyl vinyl ether, and
diethylaminoethyl vinyl ether; vinyl esters such as vinyl acetate, vinyl butyrate, vinyl
caproate, vinyl chloroacetate, vinyl methoxyacetate, vinyl phenyl acetate, vinyl

acetoacetate, vinyl benzoate, and vinyl chlorobenzoate; styrenes such as styrene, (methylstyrene, methylstyrene, dimethylstyrene, chloromethylstyrene, ethoxymethylstyrene, hydroxystyrene, chlorostyrene, and bromostyrene; and Nvinylpyrrolidone, Nvinylpyridine and acrylonitrile can be exemplified.--

Kindly replace the paragraph page 182, line 9, with the following:

-- Well-known methods in the manufacture of inks and toners can be used as dispersing methods of pigments. Examples of dispersing apparatus include a sand mill, an attritor, a pearl mill, a super-mill, a ball mill, an impeller, a disperser, a KD mill, a colloid mill, a dynatron, a three-roll mill, a pressure kneader, etc., and details are described in The Latest Pigment Applied Technique, CMC Publishing Co. (1986).--

Kindly replace the paragraph beginning on page 182, line 25, with the following:

-- As such pigments which absorb infrared rays or near infrared rays, carbon blacks are preferably used. In addition, as dyes which absorb infrared rays or near infrared rays, e.g., cyanine dyes disclosed in JP-A-58-125246, JP-A-59-84356, JP-A-59-202829, and JP-A-60-78787, methine dyes disclosed in JP-A-58-173696, JP-A-58-181690, and JP-A-58-194595, naphthoquinone dyes disclosed in JP-A-58-112793, JP-A-58-224793, JP-A-59-48187, JP-A-59-73996, JP-A-60-52940, and JP-A-60-63744, squarylium dyes disclosed in JP-A-58-112792, and cyanine dyes disclosed in British Patent 434,875 can be exemplified.--

Kindly replace the paragraph beginning on page 189, line 1, with the following:

-- The image recording material according to the present invention is in general manufactured by dissolving the above-described each component in a solvent and coating the coating solution on an appropriate support. Examples of solvents used include ethylene dichloride, cyclohexanone, methyl ethyl ketone, methanol, ethanol, propanol, ethylene glycol monomethyl ether, 1methoxy-2-propanol, 2-methoxyethylacetate, 1methoxy-2-propylacetate, dimethoxyethane, methyl lactate, ethyl lactate, N,N-dimethylacetamide, N,N-dimethylformamide, tetramethylurea, Nmethylpyrrolidone, dimethyl sulfoxide, sulfolane, γ -butyrolactone, toluene, etc., but solvents are not limited thereto. These solvents are used alone or in mixture. The concentration of the above components (entire solid content including additives) in a solvent is preferably from 1 to 50 wt%. The coating amount on the support obtained after coating and drying (solid content) is varied according to purposes, but it is, in general, preferably from 0.5 to 5.0 g/m² as to the photosensitive printing plate. Various coating methods can be used, e.g., bar coating, rotary coating, spray coating, curtain coating, dip coating, air knife coating, blade coating, and roll coating can be used. As the coating amount reduces, apparent sensitivity increases but film characteristics of the photosensitive film decreases.--

Kindly replace the paragraph beginning on page 202, line 4, with the following:

-- An aluminum plate (JIS A 1050) having a thickness of 0.24 mm was subjected to brush-graining treatment with applying to the aluminum surface a suspension of pumice having an average particle size of about 2.1 μ m and water using a rotating brush

shown below. The first brush was, hair length: 100 mm, hair diameter: 0.95 mm, and density: 70/cm², and the second brush was, hair length: 80 mm, hair diameter: 0.295 mm, and density: 670/cm². The rotation rate of brush rolls was 250 rpm respectively. After brush-graining, the plate was thoroughly washed with water, etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 60°C for 25 seconds, the plate was further washed with flowing water, then washed with a 20% nitric acid aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 1% nitric acid aqueous solution by the quantity of electricity of anode of 160 C/dm². The surface roughness determined was 0.79 μm (Ra). Subsequently, the plate was immersed in a 1% sodium hydroxide aqueous solution at 40°C for 30 seconds, then immersed in a 30% sulfuric acid aqueous solution and desmutting treatment was performed at 60°C for 40 seconds. Then, the plate was anodically oxidized by direct current in a 20% sulfuric acid aqueous solution at electric density of 2A/dm² so as to reach the oxide film amount of 1.6 g/m², thereby a substrate was prepared.--

Kindly replace the paragraph beginning on page 207, line 3, with the following:

-- A 1S aluminum plate having a thickness of 0.30 mm was subjected to brush-graining treatment using a No. 8 nylon brush and a suspension of 800 mesh pumice and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 70°C

for 60 seconds, the plate was further washed with flowing water, then washed with a 20% HNO₃ aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 1% nitric acid aqueous solution by the quantity of electricity of anode of 300 C/dm². The surface roughness determined was 0.45 μm (Ra). Subsequently, the plate was immersed in a 30% H₂SO₄ aqueous solution and desmutting treatment was performed at 55°C for 2 minutes. Then, the cathode was arranged on the surface subjected to graining treatment in a 20% H₂SO₄ aqueous solution at 33°C, and the plate was anodically oxidized at electric density of 5A/dm² for 50 seconds. The oxide film obtained had an oxide film amount of 2.7 g/m².--

Kindly replace the paragraph beginning on page 215, line 6, with the following:

-- An aluminum plate (quality of material 1050) having a thickness of 0.30 mm was washed and degreased with trichloroethylene, then subjected to brush-graining treatment using a nylon brush and a suspension of 400 mesh pumice and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 25% sodium hydroxide aqueous solution at 45°C for 9 seconds, the plate was further washed with water, then further immersed in a 2% HNO₃ aqueous solution for 20 seconds followed by washing with water. The etching amount of the grained surface at this time was about 3 g/m². The plate was anodically oxidized by direct current with a 7% H₂SO₄ aqueous solution being an electrolytic solution at electric density of 15 A/dm². The oxide film obtained was 3 g/m². The plate was then washed with water

and dried. Undercoating solution having the following composition was coated on this aluminum plate and dried at 80°C for 30 seconds. The coating amount after drying was 10 mg/m².--

Kindly replace the paragraph beginning on page 220, line 2, with the following:

-- An aluminum plate (quality of material 1050) having a thickness of 0.30 mm was washed with trichloroethylene and degreased, then subjected to brush-graining treatment using a nylon brush and a suspension of 400 mesh pumice and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 25% sodium hydroxide aqueous solution at 45°C for 9 seconds, the plate was further washed with water, then further immersed in a 20% nitric acid aqueous solution for 20 seconds followed by washing with water. The etching amount of the grained surface at this time was about 3 g/m². The plate was anodically oxidized by direct current with a 7% sulfuric acid aqueous solution being an electrolytic solution at electric density of 15 A/dm². The oxide film obtained was 3 g/m². The plate was then washed with water and dried. Undercoating solution having the following composition was coated on this aluminum plate and dried at 90°C for 1 minute. The coating amount after drying was 10 mg/m².--

Kindly replace the paragraph beginning on page 227, line 2, with the following:

-- An aluminum plate (JIS A 1050) having a thickness of 0.24 mm was subjected to brush-graining treatment with applying to the aluminum surface a suspension

of pumice having an average particle size of about $2.1 \mu\text{m}$ and water using a rotating brush shown below. The first brush was, hair length: 100 mm, hair diameter: 0.95 mm, and density: $70/\text{cm}^2$, and the second brush was, hair length: 80 mm, hair diameter: 0.295 mm, and density: $670/\text{cm}^2$. The rotation rate of brush rolls was 250 rpm respectively. After brush-graining, the plate was thoroughly washed with water, etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 60°C for 25 seconds, the plate was further washed with flowing water, then washed with a 20% nitric acid aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 1% nitric acid aqueous solution by the quantity of electricity of anode of $160 \text{ C}/\text{dm}^2$. The surface roughness determined was $0.79 \mu\text{m}$ (Ra). Subsequently, the plate was immersed in a 1% sodium hydroxide aqueous solution at 40°C for 30 seconds, then immersed in a 30% sulfuric acid aqueous solution and desmutting treatment was performed at 60°C for 40 seconds. Then, the plate was anodically oxidized by direct current in a 20% sulfuric acid aqueous solution at electric density of $2\text{A}/\text{dm}^2$ so as to reach the oxide film amount of $1.6 \text{ g}/\text{m}^2$, thereby a substrate was prepared.--

Kindly replace the paragraph beginning on page 231, line 5 (after table), with the following:

-- An aluminum plate (JIS A 1050) having a thickness of 0.24 mm was subjected to brush-graining treatment using a nylon brush and a suspension of 400 mesh

pumice and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 70°C for 60 seconds, the plate was further washed with flowing water, then washed with a 20% HNO₃ aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 1% nitric acid aqueous solution by the quantity of electricity of anode of 160 C/dm². The surface roughness determined was 0.6 μm (Ra). Subsequently, the plate was immersed in a 30% H₂SO₄ aqueous solution and desmutting treatment was performed at 55°C for 2 minutes. Then, the plate was anodically oxidized in a 20% H₂SO₄ aqueous solution at electric density of 14 A/dm² so as to reach the anodic oxidation film amount of 2.5 g/m², then plate was washed with water. Thus, substrate (A) was obtained.--

Kindly replace the paragraph beginning on page 236, line 4 (after table), with the following:

-- An aluminum plate (JIS A 1050) having a thickness of 0.24 mm was subjected to brush-graining treatment with applying to the aluminum surface a suspension of pumice having an average particle size of about 2.1 μm and water using a rotating brush shown below. The first brush was, hair length: 100 mm, hair diameter: 0.95 mm, and density: 70/cm², and the second brush was, hair length: 80 mm, hair diameter: 0.295 mm, and density: 670/cm². The rotation rate of brush rolls was 250 rpm respectively. After brush-graining, the plate was thoroughly washed with water, etching was effected by

immersing the plate in a 10% sodium hydroxide aqueous solution at 60°C for 25 seconds, the plate was further washed with flowing water, then washed with a 20% nitric acid aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 11% nitric acid aqueous solution by the quantity of electricity of anode of 160 C/dm². The surface roughness determined was 0.50 μm (Ra). Subsequently, the plate was immersed in a 1% sodium hydroxide aqueous solution at 40°C for 30 seconds, then immersed in a 30% sulfuric acid aqueous solution and desmutting treatment was performed at 60°C for 40 seconds. Then, the plate was anodically oxidized by direct current in a 20% sulfuric acid aqueous solution at electric density of 2A/dm² so as to reach the oxide film amount of 1.6 g/m², and the plate was washed, thereby a substrate was prepared.--

Kindly replace the paragraph beginning on page 246, line 2, with the following:

-- An aluminum plate (quality of material 1050) having a thickness of 0.30 mm was washed with trichloroethylene and degreased, then subjected to brush-graining treatment using a nylon brush and a suspension of 400 mesh pumice and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 25% sodium hydroxide aqueous solution at 45°C for 9 seconds, the plate was further washed with water, then further immersed in a 20% nitric acid aqueous solution for 20 seconds followed by washing with water. The etching amount of the grained surface at this time was about 3 g/m². The plate was anodically oxidized by

direct current with a 7% sulfuric acid aqueous solution being an electrolytic solution at electric density of 15 A/dm². The oxide film obtained was 3 g/m². The plate was then washed with water and dried. Undercoating solution having the following composition was coated on this aluminum plate and dried at 90°C for 1 minute. The coating amount after drying was 10 mg/m².--

REMARKS

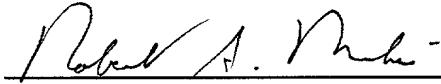
By the instant Preliminary Amendment, the revisions made to the specification in the parent application have been again implemented in the interest of consistency. In addition, claims 5 and 6, the claims under consideration in the parent application, have been canceled without prejudice or disclaimer in the instant divisional application.

Favorable consideration on the merits is respectfully requested.

Should the Examiner wish to discuss any aspect of the present application, the Examiner is invited to contact the undersigned attorney at the number provided below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 

Robert G. Mukai
Registration No. 28,531

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Date: May 23, 2001

Attachment to Preliminary Amendment dated May 23, 2001

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Page 4, Paragraph Beginning at Line 20

Safelight tolerance is a criterion showing the stability of the sensitivity of an image when a printing plate is exposed to a safelight such as a fluorescent lamp and the higher the contrast of the image, the higher is the safelight tolerance. This [is concerning with] concerns the fact that quinonediazide is partially decomposed by a safelight. This is because if the quinonediazide is a little decomposed by a weak safelight when an image is high contrast, the image is not eluted and becomes the same with the image not exposed to a safelight.

Page 7, Paragraph Beginning at Line 2

For example, a technique of increasing sensitivity by adding a cyclic acid anhydride is disclosed in JP-A-52-80022 (the term "JP-A" as used herein means an "unexamined published Japanese patent application"). However, although the effect of increasing sensitivity is certainly observed according to this method, if an acid anhydride is added in the amount [of an extent] to be able to obtain a sufficient sensitivity increase, the image becomes soft and safelight tolerance and development latitude extremely deteriorate. Further, for increasing sensitivity, the addition of a condensation product of hydroxybenzophenone and formaldehyde is disclosed in JP-A-55-73045. In this case also as the same with the above JP-A-52-80022, the effect of increasing sensitivity is observed

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but if the addition amount is such that a sufficient sensitivity increase can be obtained, the image becomes soft and safelight tolerance and development latitude deteriorate.

Page 13, Paragraph Beginning at Line 1

That is, the present inventors have found that when the following copolymer is added to a photosensitive resin composition as the first fluorine-containing polymer, a positive type photosensitive resin composition showing image-forming property of high contrast, antihalation, safelight tolerance and wide development latitude can be obtained without decreasing the sensitivity. This method of the present invention is particularly effective for making a positive type photosensitive resin composition highly sensitized by conventionally known methods [high contrast]. A soft image can be made high contrast, and halation, safelight tolerance and development latitude can be improved by the addition of the fluorine-containing polymer according to the present invention.

Page 14, Paragraph Beginning at Line 14

As a result of eager investigation by the present inventors, it has been further found that the above object can be achieved by adding the second fluorine-containing polymer to a positive type photosensitive composition. That is, a positive type photosensitive composition showing image-forming property of high contrast, antihalation, safelight tolerance and wide development latitude can be obtained without decreasing the sensitivity

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by adding, as a fluorine-containing polymer, a copolymer having (1) a constituting component having a fluorine atom, (2) a constituting component having an acidic hydrogen atom, and (3) a constituting component showing lipophilic property to a photosensitive composition. This method of the present invention is particularly effective for making a positive type photosensitive composition highly sensitized by conventionally known methods [high contrast]. A soft image can be made high contrast, and halation, safelight tolerance and development latitude can be improved by the addition of the fluorine-containing polymer according to the present invention.

Page 100, Paragraph Beginning at Line 3

Alkali agents so far [been] known can be used as a base [to be used] in combination with reducing sugars. Examples of such alkali agents include an inorganic alkali agent such as sodium hydroxide, potassium hydroxide, lithium hydroxide, trisodium phosphate, tripotassium phosphate, triammonium phosphate, disodium phosphate, dipotassium phosphate, diammonium phosphate, sodium carbonate, potassium carbonate, ammonium carbonate, sodium hydrogencarbonate, potassium hydrogencarbonate, ammonium hydrogencarbonate, sodium borate, potassium borate, and ammonium borate. In addition to the above, organic alkali agents such as monomethylamine, dimethylamine, trimethylamine, monoethylamine, diethylamine, triethylamine, monoisopropylamine, diisopropylamine, triisopropylamine, nbutylamine, monoethanolamine, diethanolamine,

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triethanolamine, monoisopropanolamine, diisopropanolamine, ethyleneimine, ethylenediamine, and pyridine are also used.

Page 108, Paragraph Beginning at Line 23

Further, if necessary, a developing solution can contain antiseptics, coloring agents, thickeners, defoaming agents, and water softeners. Examples of water softeners include polyphosphoric acid and sodium salt, potassium salt and ammonium salt thereof, aminopolycarboxylic acid and sodium salt, potassium salt and ammonium salt thereof, e.g., ethylenediaminetetraacetic acid, diethylenetriaminepentaacetic acid, triethylenetetraminehexaacetic acid, hydroxyethylethylenediaminetriacetic acid, nitrilotriacetic acid, 1,2diaminocyclohexanetetraacetic acid, and 1,3-diamino-2-propanoltetraacetic acid, aminotri(methylenephosphonic acid), ethylenediaminetetra(methylenephosphonic acid), diethylenetriaminepenta(methylenephosphonic acid), triethylenetetraminehexa(methylenephosphonic acid), hydroxyethylethylenediaminetri(methylenephosphonic acid), and 1-[hydroxytaene-1] hydroxyethane-1,1-diphosphonic acid and sodium salt, potassium salt and ammonium salt thereof.

Page 152, Paragraph Beginning at Line 6

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Other additives which can be incorporated in the photosensitive composition, support, other coatings such as an [organic] organic undercoating layer, methods of coating the photosensitive composition, exposure and development can be effected as described with respect to the positive photosensitive composition containing the first fluorine-containing polymer. The photosensitive composition containing the third fluorine-containing polymer can contain the yellow dyes represented by formulae (I) to (III) described with respect to the photosensitive composition containing the second fluorine-containing polymer, and do not have to contain a photo-acid generator necessarily.

Page 156, Paragraph Beginning at Line 12

For example, (meth)acrylates such as methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate, butyl (meth)acrylate, amyl (meth)acrylate, 2ethylhexyl (meth)acrylate, octyl (meth)acrylate, 2chloroethyl (meth)acrylate, cyclohexyl (meth)acrylate, 2hydroxyethyl (meth)acrylate, 2hydroxypropyl (meth)acrylate, 2hydroxybutyl (meth)acrylate, diethylene glycol mono(meth)acrylate, 2hydroxy-3-phenoxypropyl (meth)acrylate, glycidyl (meth)acrylate, diethylaminoethyl (meth)acrylate, furfuryl (meth)acrylate, tetrahydrofuryl (meth)acrylate, phenyl (meth)acrylate, hydroxyphenyl (meth)acrylate, cresyl (meth)acrylate, naphthyl (meth)acrylate, benzyl (meth)acrylate, and methoxybenzyl (meth)acrylate; (meth)acrylamides such as (meth)acrylamide, Nethyl(meth)acrylamide,

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Npropyl(meth)acrylamide, Nbutyl(meth)acrylamide, Nhexyl(meth)acrylamide,
Noctyl(meth)acrylamide, Ncyclohexyl(meth)acrylamide, Nmethylo(meth)acrylamide,
Nhydroxyethyl(meth)acrylamide, Nbenzyl(meth)acrylamide, Nphenyl(meth)acrylamide,
Nnitrophenyl(meth)acrylamide, Ntolyl(meth)acrylamide,
Nhydroxyphenyl(meth)acrylamide, N,Ndimethyl(meth)acrylamide,
N,Ndiethyl(meth)acrylamide, and N,Ndicyclohexyl(meth)acrylamide; Nsubstituted
maleimides such as Nmethylmaleimide, Nethylmaleimide, Npropylmaleimide,
Nbutylmaleimide, Npentylmaleimide, Nn-hexylmaleimide, Nlaurylmaleimide,
Nstearylmaleimide, Ncyclohexylmaleimide, Nphenylmaleimide, Nchlorophenylmaleimide,
Ntolylmaleimide, Nhydroxymaleimide, and Nbenzylmaleimide; allyl compounds such as
allyl acetate, allyl caproate, allyl [stearate] stearate, and allyloxyethanol; vinyl ethers such
as ethyl vinyl ether, propyl vinyl ether, butyl vinyl ether, octyl vinyl ether, methoxyethyl
vinyl ether, ethoxyethyl vinyl ether, 2chloroethyl vinyl ether, hydroxyethyl vinyl ether,
benzyl vinyl ether, tetrahydrofurfuryl vinyl ether, phenyl vinyl ether, tolyl vinyl ether, and
diethylaminoethyl vinyl ether; vinyl esters such as vinyl acetate, vinyl butyrate, vinyl
caproate, vinyl chloroacetate, vinyl methoxyacetate, vinyl phenyl acetate, vinyl
acetoacetate, vinyl benzoate, and vinyl chlorobenzoate; styrenes such as styrene,
(methylstyrene, methylstyrene, dimethylstyrene, chloromethylstyrene, ethoxymethylstyrene,
hydroxystyrene, chlorostyrene, and bromostyrene; and Nvinylpyrrolidone, Nvinylpyridine
and acrylonitrile can be exemplified.

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Page 182, Paragraph Beginning at Line 9

[Well-know] Well-known methods in the manufacture of inks and toners can be used as dispersing methods of pigments. Examples of dispersing apparatus include a sand mill, an attritor, a pearl mill, a super-mill, a ball mill, an impeller, a disperser, a KD mill, a colloid mill, a dynatron, a three-roll mill, a pressure kneader, etc., and details are described in The Latest Pigment Applied Technique, CMC Publishing Co. (1986).

Page 182, Paragraph Beginning at Line 25

As such pigments which absorb infrared rays or near infrared rays, carbon blacks are preferably used. In addition, as dyes which absorb infrared rays or near infrared rays, e.g., cyanine dyes disclosed in JP-A-58-125246, JP-A-59-84356, JP-A-59-202829, and JP-A-60-78787, methine dyes disclosed in JP-A-58-173696, JP-A-58-181690, and JP-A-58-194595, naphthoquinone dyes disclosed in JP-A-58-112793, JP-A-58-224793, JP-A-59-48187, JP-A-59-73996, JP-A-60-52940, and JP-A-60-63744, [squalilium] squarylium dyes disclosed in JP-A-58-112792, and cyanine dyes disclosed in British Patent 434,875 can be exemplified.

Page 189, Paragraph Beginning at Line 1

The image recording material according to the present invention is in general manufactured by dissolving the above-described each component in a solvent and coating

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the coating solution on an appropriate support. Examples of solvents used include ethylene dichloride, cyclohexanone, methyl ethyl ketone, methanol, ethanol, propanol, ethylene glycol monomethyl ether, 1methoxy-2-propanol, 2-methoxyethylacetate, 1methoxy-2-propylacetate, dimethoxyethane, methyl lactate, ethyl lactate, N,N-dimethylacetamide, N,N-dimethylformamide, tetramethylurea, Nmethylpyrrolidone, dimethyl sulfoxide, [sulforane] sulfolane, γ -butyrolactone, toluene, etc., but solvents are not limited thereto. These solvents are used alone or in mixture. The concentration of the above components (entire solid content including additives) in a solvent is preferably from 1 to 50 wt%. The coating amount on the support obtained after coating and drying (solid content) is varied according to purposes, but it is, in general, preferably from 0.5 to 5.0 g/m² as to the photosensitive printing plate. Various coating methods can be used, e.g., bar coating, rotary coating, spray coating, curtain coating, dip coating, air knife coating, blade coating, and roll coating can be used. As the coating amount reduces, apparent sensitivity increases but film characteristics of the photosensitive film decreases.

Page 202, Paragraph Beginning at Line 4

An aluminum plate (JIS A 1050) having a thickness of 0.24_mm was subjected to brush-graining treatment with applying to the aluminum surface a suspension of pumice [stone] having an average particle size of about 2.1 μm and water using a rotating brush shown below. The first brush was, hair length: 100 mm, hair diameter: 0.95 mm, and

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density: 70/cm², and the second brush was, hair length: 80 mm, hair diameter: 0.295 mm, and density: 670/cm². The rotation rate of brush rolls was 250 rpm respectively. After brush-graining, the plate was thoroughly washed with water, etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 60°C for 25 seconds, the plate was further washed with flowing water, then washed with a 20% nitric acid aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 1% nitric acid aqueous solution by the quantity of electricity of anode of 160 C/dm². The surface roughness determined was 0.79 μm (Ra). Subsequently, the plate was immersed in a 1% sodium hydroxide aqueous solution at 40°C for 30 seconds, then immersed in a 30% sulfuric acid aqueous solution and desmutting treatment was performed at 60°C for 40 seconds. Then, the plate was anodically oxidized by direct current in a 20% sulfuric acid aqueous solution at electric density of 2A/dm² so as to reach the oxide film amount of 1.6 g/m², thereby a substrate was prepared.

Page 207, Paragraph Beginning at Line 3

A 1S aluminum plate having a thickness of 0.30 mm was subjected to brush-graining treatment using a No. 8 nylon brush and a suspension of 800 mesh pumice [stone] and water, and the surface of the plate was thoroughly washed with water. The

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etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 70°C for 60 seconds, the plate was further washed with flowing water, then washed with a 20% HNO₃ aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 1% nitric acid aqueous solution by the quantity of electricity of anode of 300 C/dm². The surface roughness determined was 0.45 μm (Ra). Subsequently, the plate was immersed in a 30% H₂SO₄ aqueous solution and desmutting treatment was performed at 55°C for 2 minutes. Then, the cathode was arranged on the surface subjected to graining treatment in a 20% H₂SO₄ aqueous solution at 33°C, and the plate was anodically oxidized at electric density of 5A/dm² for 50 seconds. The oxide film obtained had an oxide film amount of 2.7 g/m².

Page 215, Paragraph Beginning at Line 6

An aluminum plate (quality of material 1050) having a thickness of 0.30 mm was washed and degreased with trichloroethylene, then subjected to brush-graining treatment using a nylon brush and a suspension of 400 mesh pumice [stone] and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 25% sodium hydroxide aqueous solution at 45°C for 9 seconds, the plate was further washed with water, then further immersed in a 2% HNO₃ aqueous solution for 20 seconds followed by washing with water. The etching amount of the

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grained surface at this time was about 3 g/m². The plate was anodically oxidized by direct current with a 7% H₂SO₄ aqueous solution being an electrolytic solution at electric density of 15 A/dm². The oxide film obtained was 3 g/m². The plate was then washed with water and dried. Undercoating solution having the following composition was coated on this aluminum plate and dried at 80°C for 30 seconds. The coating amount after drying was 10 mg/m².

Page 220, Paragraph Beginning at Line 2

An aluminum plate (quality of material 1050) having a thickness of 0.30 mm was washed with trichloroethylene and degreased, then subjected to brush-graining treatment using a nylon brush and a suspension of 400 mesh pumice [stone] and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 25% sodium hydroxide aqueous solution at 45°C for 9 seconds, the plate was further washed with water, then further immersed in a 20% nitric acid aqueous solution for 20 seconds followed by washing with water. The etching amount of the grained surface at this time was about 3 g/m². The plate was anodically oxidized by direct current with a 7% sulfuric acid aqueous solution being an electrolytic solution at electric density of 15 A/dm². The oxide film obtained was 3 g/m². The plate was then washed with water and dried. Undercoating solution having the following composition was

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coated on this aluminum plate and dried at 90°C for 1 minute. The coating amount after drying was 10 mg/m².

Page 227, Paragraph Beginning at Line 2

An aluminum plate (JIS A 1050) having a thickness of 0.24 mm was subjected to brush-graining treatment with applying to the aluminum surface a suspension of pumice [stone] having an average particle size of about 2.1 μm and water using a rotating brush shown below. The first brush was, hair length: 100 mm, hair diameter: 0.95 mm, and density: 70/cm², and the second brush was, hair length: 80 mm, hair diameter: 0.295 mm, and density: 670/cm². The rotation rate of brush rolls was 250 rpm respectively. After brush-graining, the plate was thoroughly washed with water, etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 60°C for 25 seconds, the plate was further washed with flowing water, then washed with a 20% nitric acid aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 1% nitric acid aqueous solution by the quantity of electricity of anode of 160 C/dm². The surface roughness determined was 0.79 μm (Ra). Subsequently, the plate was immersed in a 1% sodium hydroxide aqueous solution at 40°C for 30 seconds, then immersed in a 30% sulfuric acid aqueous solution and desmutting treatment was performed at 60°C for 40 seconds. Then, the plate

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was anodically oxidized by direct current in a 20% sulfuric acid aqueous solution at electric density of $2\text{A}/\text{dm}^2$ so as to reach the oxide film amount of 1.6 g/m^2 , thereby a substrate was prepared.

Page 231, Paragraph Beginning at Line 5 (after table)

An aluminum plate (JIS A 1050) having a thickness of 0.24 mm was subjected to brush-graining treatment using a nylon brush and a suspension of 400 mesh pumice [stone] and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 70°C for 60 seconds, the plate was further washed with flowing water, then washed with a 20% HNO_3 aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 1% nitric acid aqueous solution by the quantity of electricity of anode of 160 C/dm^2 . The surface roughness determined was $0.6\text{ }\mu\text{m}$ (Ra). Subsequently, the plate was immersed in a 30% H_2SO_4 aqueous solution and desmutting treatment was performed at 55°C for 2 minutes. Then, the plate was anodically oxidized in a 20% H_2SO_4 aqueous solution at electric density of 14 A/dm^2 so as to reach the anodic oxidation film amount of 2.5 g/m^2 , then plate was washed with water. Thus, substrate (A) was obtained.

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Page 236, Paragraph Beginning at Line 4 (after table)

An aluminum plate (JIS A 1050) having a thickness of 0.24 mm was subjected to brush-graining treatment with applying to the aluminum surface a suspension of pumice [stone] having an average particle size of about $2.1 \mu\text{m}$ and water using a rotating brush shown below. The first brush was, hair length: 100 mm, hair diameter: 0.95 mm, and density: $70/\text{cm}^2$, and the second brush was, hair length: 80 mm, hair diameter: 0.295 mm, and density: $670/\text{cm}^2$. The rotation rate of brush rolls was 250 rpm respectively. After brush-graining, the plate was thoroughly washed with water, etching was effected by immersing the plate in a 10% sodium hydroxide aqueous solution at 60°C for 25 seconds, the plate was further washed with flowing water, then washed with a 20% nitric acid aqueous solution for neutralization followed by washing with water. Under the condition of V_A of 12.7 V using alternating waveform electric current of sine wave, the plate was subjected to electrolytic surface roughening treatment in a 11% nitric acid aqueous solution by the quantity of electricity of anode of $160 \text{ C}/\text{dm}^2$. The surface roughness determined was $0.50 \mu\text{m}$ (Ra). Subsequently, the plate was immersed in a 1% sodium hydroxide aqueous solution at 40°C for 30 seconds, then immersed in a 30% sulfuric acid aqueous solution and desmutting treatment was performed at 60°C for 40 seconds. Then, the plate was anodically oxidized by direct current in a 20% sulfuric acid aqueous solution at electric density of $2\text{A}/\text{dm}^2$ so as to reach the oxide film amount of $1.6 \text{ g}/\text{m}^2$, and the plate was washed, thereby a substrate was prepared.

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Page 246, Paragraph Beginning at Line 2

An aluminum plate (quality of material 1050) having a thickness of 0.30 mm was washed with trichloroethylene and degreased, then subjected to brush-graining treatment using a nylon brush and a suspension of 400 mesh pumice [stone] and water, and the surface of the plate was thoroughly washed with water. The etching was effected by immersing the plate in a 25% sodium hydroxide aqueous solution at 45°C for 9 seconds, the plate was further washed with water, then further immersed in a 20% nitric acid aqueous solution for 20 seconds followed by washing with water. The etching amount of the grained surface at this time was about 3 g/m². The plate was anodically oxidized by direct current with a 7% sulfuric acid aqueous solution being an electrolytic solution at electric density of 15 A/dm². The oxide film obtained was 3 g/m². The plate was then washed with water and dried. Undercoating solution having the following composition was coated on this aluminum plate and dried at 90°C for 1 minute. The coating amount after drying was 10 mg/m².